



DEMOWATERCOLI

Demonstration of a Rapid Microbial Monitor for Operations and Quality Decision-making in the Water Industries



COLIFAST®



EC Framework 5: Quality of Life and Management of Living Resources

Key Action 1: Food, Nutrition and Health

Contract Number: QLK1-CT-2001-01209

Start of the Project: 01-12-2001

<http://www.cordis.lu/fp5/>

Goals

- Early warning of indicator organisms within 3 to 16 hours
 - Rapid detection, within 50% of the time needed for the methods in common use
 - Operation of an unmanned at-line monitor in industrial conditions
 - Pre-normative comparability of the methods with international standards
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Instrumentation



Colifast® Analyser (CA)
Laboratory instrument



Colifast® At-Line Monitor (CALM)
Fully automated

Deliverable highlights

- 2 instruments, 3 methods, documentation developed and field tested
 - Detection of 1-20 CFU/100 ml of E.coli within 8-14 hours
 - No difference between ISO 9308-1 (E.coli) and Colifast® E.coli
 - Colifast® E.coli sensitivity and specificity of 98% and 97%, respectively
 - 100% agreement Colilert® vs. Colifast®'s 12 hour coliform test (>200 cfu/100ml)
 - Colifast P. aeruginosa sensitivity and specificity of 99% and 100%, respectively
 - A 10-16 hour detection time for P. aeruginosa (1-20 CFU/100 ml)
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Markets

- HACCP testing under non-sterile circumstances
- Testing at site, at times chosen by the user
- Test results in shorter time to make decisions
- Automatic test results: simplified reporting

Application highlights Coliforms/E. coli

Information	CALM	CA
Location	In-plant/remote	Laboratory
Sampling from water source	Fully automated	Manual (liquid sample or membrane filtration)
Sub sampling	Fully automated	Fully automated
Quantification software options	MPN, P/A, ESQ	MPN, P/A, ESQ, MUP
Number of samples/run	1-76	1-76
Remote warning	Yes	Yes
Number of different tests/run	1-3	1-3
Data handling	Fully automated	Semi automated
Time to results (hours)	4*-12 * ESQ	2*-12 *MUP
Skill requirement	Moderate	Moderate

Prenormative validation

"In the study, CA method has a low rate of false positive and low rate of false negative. CA method can also give results within a reasonable time (within 10 h, ideal would be real time) and can be used in situ. These 3 aspects are obviously an advantage for process monitoring of water drinking treatment plants, for which the method could be recommended."

Independent expert Dr. Tristan Simonart, Pasteur Institute

"Now, an online instrument (CALM) is utilised and its performance is evaluated for the detection of indicator organisms in the course of a European project. These technologies could have high operating relevance for the indicator bacteria because their presence, detected through a continuous monitoring, could be an early warning of failure or cross-connection with sewage lines in drinking water distribution systems."

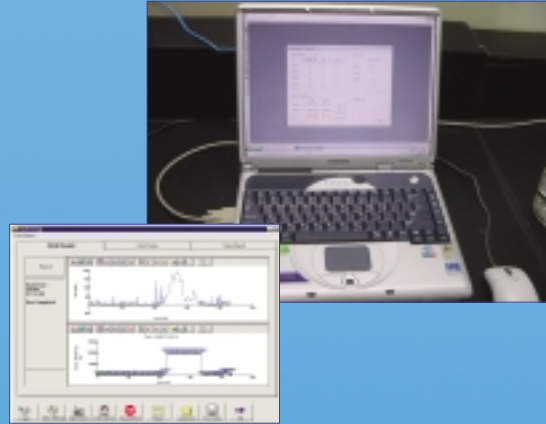
From Chapter 9 (Rapid analysis of microbial contamination of water, by Dr. Lucia Bonadonna, ISS Italy), in Rapid and on-line instrumentation for food quality assurance (I.E. Tothill (ed.), Woodhead Pub. Ltd., Cambridge, England, 2003).

Installation case



The CALM in field demonstration at a Thames water treatment plant.

Automated reporting



Automated results transmitted from site to the operator.

Participants

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